

PAS 128: 2014 (Quality of Survey Level Outputs):

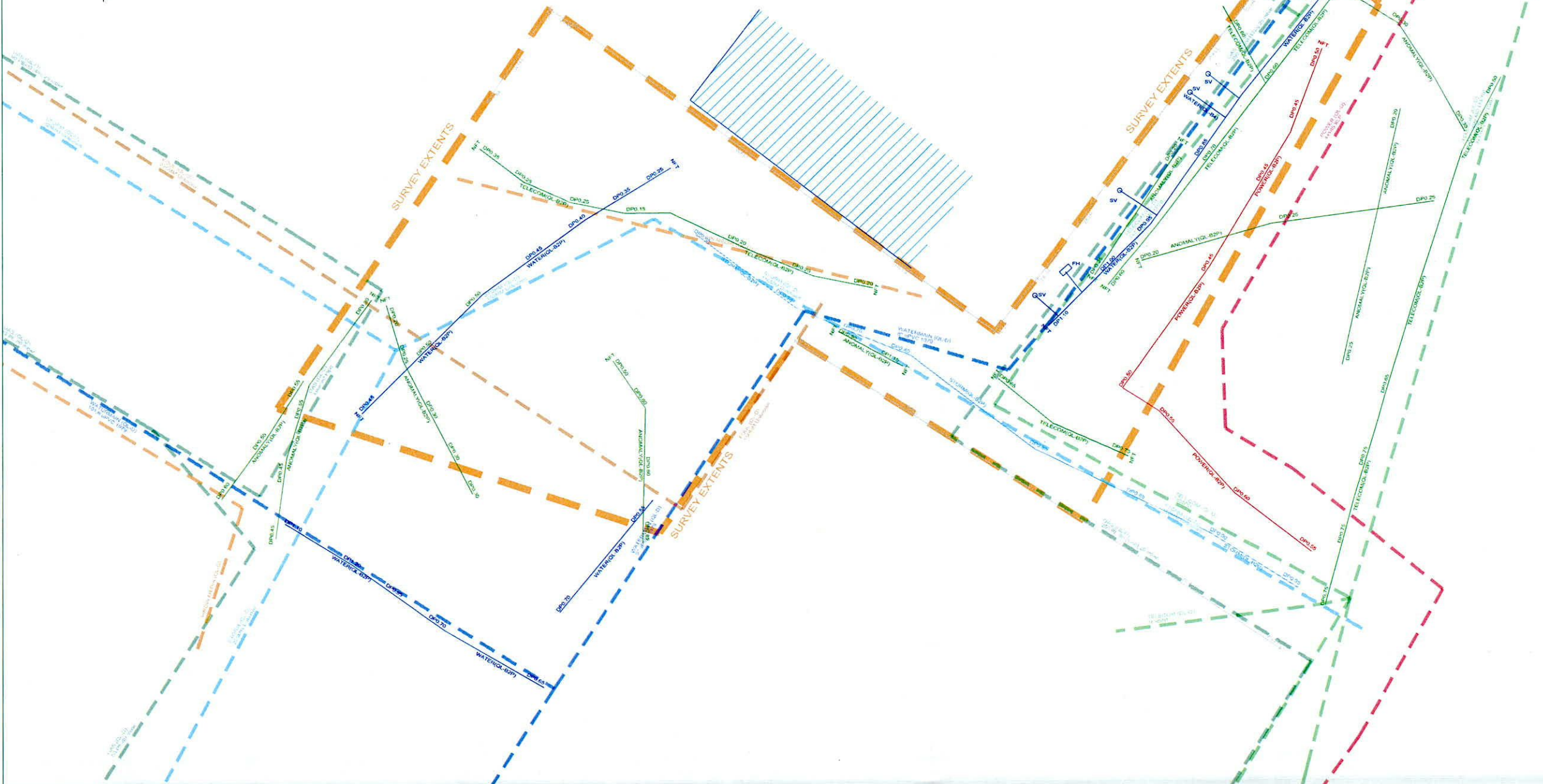
DESKTOP UTILITY RECORDS SEARCH	QL-D	Drafted from utility records
SITE RECONNAISSANCE	QL-C	Location Demonstrated by visual reference to street furniture or evidence of previous streetworks, ie - reinstatement scars
DETECTION	QL-B4	A segment of utility suspected to exist but has not been detected by a geophysical technique
	QL-B3	Horizontal location only of the utility detected by one of the geophysical techniques used
	QL-B2	Horizontal and vertical location of the utility detected by one of the geophysical techniques used
	QL-B1	Horizontal and vertical location of the utility detected by multiple geophysical techniques
VERIFICATION	QL-A	Horizontal and vertical location of the top and/or bottom of the utility

Apex Surveys Ltd. Disclaimer - Utility Survey

The interpretative nature and the non-intrusive, indirect and non-destructive survey methods must be taken into account when considering the results of the surveys. Therefore Apex Surveys, while using appropriate practice to execute, interpret and present the data, gives no guarantees that all underground utilities and underground structures will be located and mapped. Furthermore, Apex Surveys cannot guarantee the accuracy of the utility depths annotated on the survey drawings. Apex Survey shall not be liable for any omissions or inaccuracies in the survey which arise due to the limitations of the service. No liability shall attach to Apex Surveys, in any circumstances, however arising, in respect of any consequential loss or damages suffered by the Client.

The following is a non-exhaustive list of the limitations of utility surveys:

- The Survey aims to map existing utilities subsurface utilities and provide information with respect to pipe size, material type and drainage connectivity. However utility surveying is limited by the following guidelines and it may not be possible to accurately survey, define and locate all services and sub-surface features.
 - Depth of Utility: The depth and size of a utility affect the signal response and the degree with which a utility can be located.
 - Due to attenuation of the radar signal with depth, resolution is restricted, hence making identification of utilities more difficult with increasing depth.
 - Size of Utility: The smaller the diameter of a utility the more difficult it is to locate. This difficulty increases with depth.
 - Ground Conditions: The depth penetration and quality of the data depends on the ground conditions of the site. GPR Surveying works best within high resistivity material. Clay overburden can impair GPR Surveying. Poor data may be a result of areas with high conductivity.
 - Utility Congestion: Where different utilities converge together into a service corridor or cross paths it becomes difficult to isolate a specific utility and to map its route. The reflected signal will display a single response to multiple utilities. Therefore multiple utilities may appear to be a single utility. Where similar services run on close proximity, separation may be impossible.
 - Signal Jumping: Signal from surrounding services may 'jump' to a highly conductive line masking its true identity.
 - Shadowing: (of deeper utilities by shallower objects) Shallow utilities will mask the existence of deeper utilities where they are in close proximity. Also, high reflective materials close to the surface i.e rebar may hide deeper anomalies.
 - Surface Obstructions: The GPR system relies on a relatively flat and even surface on which to perform radar passes. If ground obstructions such as vehicles, organic material (long grass, scrub) or undulating ground surface are present then the acquired data will be of lower resolution and in some cases not viable.
 - Loss of signal: It is not always possible to trace the entire length of each underground service.
 - Connections between manholes: Connections between manhole chambers are assumed to be straight.
 - Non-metallic objects: Nonmetallic objects are amongst the most difficult to trace therefore successful tracing of non-metallic pipes/ utilities may be limited.
 - Fiber Optic Cables: Fiber optic cables may not be possible to locate except where laid with a built in tracer wire or similar conductor system.
 - Defective / flooded manholes or pipework: It may not be possible to establish connections between flooded or defective manholes or pipework.
 - Acute bends in pipework: It may not be possible to trace a pipe past an acute bend.
 - Accuracy estimates:
 - Locational accuracy is determined by referring to the manufacturers guidelines for the detector used.
 - In ideal conditions the spatial accuracies for the underground utilities may be +/- 5% for Radiodetection and +/- 10% of depth for the GPR to 2.5m deep. However variations within the subsurface, depth below the ground, close proximity of other services and local magnetic, atmospheric or ground conditions, bends, lateral service connections and any of the other limitations listed in this disclaimer may alter this estimated accuracy.
 - Plan accuracies of +/- 150mm may be achieved but this figure will depend on the depth of service below ground level. However variations within the subsurface, depth below the ground, close proximity of other services and local magnetic, atmospheric or ground conditions, bends, lateral service connections and any of the other limitations listed in this disclaimer may alter this estimated accuracy.
 - DP represents distance from the surface level to the top of the service/ target
 - Where technically possible, depth indications will be given. These along with plan positions should be used for guidance only and wherever critical accuracy is required these should be confirmed by the client by undertaking trial excavations or similar.
- Record Drawing Information**
- Services which have been untraceable are shown from records where possible or available. These lines are annotated as "Taken From Records" or "From Records".
 - Existing record information showing underground services is often incomplete and with unknown accuracies therefore it should be regarded as indicative only.
 - Where Apex Surveys issue a utility drawing, this should be read in conjunction with all available public or private utility records.
 - Apex Surveys endeavor to add relevant Public Utility record information onto the final drawing. However, we would recommend that direct contact is made with the asset owner or statutory undertaker.
 - We shall not be held responsible for the accuracy, or otherwise, of the location of a service, as issued by the utility provider and therefore shown as "Taken From Records" on the drawing.
- The following have been excluded from the survey:
- Location of individual service feeds to properties or buildings as access would be required into each property to apply direct connections to inlet points and this would significantly increase the scope of works, survey cost and also cause possible disruption to occupants.
 - Pot ended or disconnected cables or terminated short lengths of pipe.
 - Internal building services.
 - Small diameter cables less than 20mm diameter or pipes less than 40mm diameter.
 - Above ground services unless specifically requested.
 - Lifting manholes which require longer than 10 minutes effort using standard heavy duty apparatus.
- All works carried out by Apex Surveys conform to the guidelines set out by The Survey Association (TSA) and PAS 128 Standard for utility mapping



APEX SURVEYS

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STREET FURNITURE :

BOLLARDS	BOC
BUS STOP	CI
CRASH BARRIER	CONC
GATE	DIA
ELECTRICITY POLE	
TELEPHONE POLE	
EARTHING ROD	
LAMP POST	
MARKER POST	
SIGN POST	
TRAFFIC LIGHT	
TELEPHONE BOX	
POST	
POST BOX	
ROADSIGN	
BORE HOLE	
TRIAL PIT	
BOTTOM OF CHAMBER	
CAST-IRON	
CONCRETE	
DIAMETER	

SERVICES :

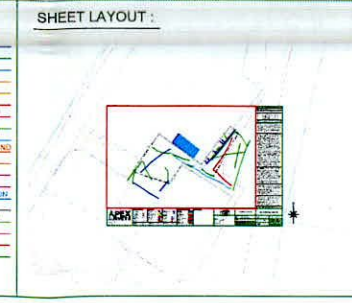
AIR VALVE	AV
ARMSTRONG JUNCTION	AJ
CABLE TV IC	CATV
COVER LEVEL	CL
EIRCOM COVER	EIRCOM
EIRCOM JUNCTION BOX	EIRCOM BOX
ELECTRICAL CABLE PIT	ECP
ESAT COVER	ESAT
ESB COVER	ESB
ESB JUNCTION BOX	ESB BOX
FIRE HYDRANT	FH
GAS VALVE	GV
GULLY	G
INSPECTION COVER	IC
MANHOLE	MH
SEPTIC TANK	SEPTIC
SLUICE VALVE	SV
DOWNSPIPE	DP
EARTHENWARE	EW
NO FURTHER TRACE	NFT
OFF-SITE	OS

LEVELS :

BED LEVEL	+BED101.50
FLOOR LEVEL	+FL101.50
INVERT LEVEL	+IL101.50
ROAD LEVEL	+101.50
SOFFIT LEVEL	+SL101.50
SPOT LEVEL	+101.50
TOP OF WALL LEVEL	+TOW101.50
WATER LEVEL	+WL101.50
SURVEY CONTROL STATION	
START OF RUN	SOR
UNABLE TO OPEN	UO
UNABLE TO TRACE	UTT

UNDERGROUND LEGEND :

WATER MAIN	WATER
GAS MAIN	GAS
STORM DRAIN	SDRAIN
FOUL SEWER	FOUL
COMBINED SEWER	COMB
ELECTRIC CABLE	ELECTRIC
ELECTRIC LIGHTING	ELECTRIC LIGHTING
EIRCOM	EIRCOM
FIBRE OPTIC CABLE	FIBRE OPTIC
BROADBAND	BROADBAND
CABLE TV	CABLE TV
TRAFFIC AND SIGNAL CABLE	TRAFFIC AND SIGNAL
CCTV	CCTV
IRRIGATION PIPE	IRRIGATION
EMPTY DUCT	EMPTY
GPR ANOMALY	GPR ANOMALY
UNKNOWN CABLE	UNKNOWN CABLE
OVERHEAD ELECTRICITY	OVERHEAD ELECTRICITY
OVERHEAD TELECOM	OVERHEAD TELECOM



PLAN PRODUCED BY:

APEX SURVEYS

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CLIENT:

Caroline Cummins

GRID SYSTEM: Irish Transverse Mercator
DATUM: Main Head (OSGM15)
NOTES: Drawing Contains Scale Factor

REVISIONS:

No.	Date	Description
001	12/09	Original Drawing

PROJECT:

192 Castle Park, Greenhills

SCALE: 1/100 A1

DATE: 12/09/2022

DRG No: 5330

SHEET: 1 of 1

DESCRIPTION: 2D Utilities

SURVEYED BY: Darragh G.

PROCESSED BY: Andrea S.

CHECKED BY: Alan Brady